

FIRST OFFICE ACTION

Claims 1-12 are pending.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The following reasons apply:

- a. The limitation “solvates” has indefinite metes and bounds because the specification does not define said limitation in term of appropriate solvents and their proportions.
- b. The term “characterized” renders claims 2-4 indefinite because it is not clear if the description following said term is a limitation or a preamble.
- c. Claims 2, 3, 5-11 lack antecedent basis because they depend on claim 1, but recite the limitation of “alkyl” in the list of substituents on R⁹, which is not recited in claim 1.
- d. The term “controlling” is indefinite because it is not clear if it means “prophylaxis”, or “alleviating symptoms”, or “reducing viral growth”.
- e. **Use Claim:** Claim 6-8 provide for the use of compounds of the claimed formula (I), but, since the claim does not set forth any steps involved in the method/process, it is

unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Scope of Enablement:** Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the preparation and use of *salts*, does not reasonably provide enablement for the preparation and use of *solvates*. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The following factors have been considered in the determination of an enabling disclosure:

- (1) The breadth of the claims;
- (2) The amount of direction or guidance presented;
- (3) The state of the prior art;
- (4) The relative skill of those in the art;
- (5) The predictability or unpredictability of the art;

(6) The quantity of experimentation necessary;

[See *Ex parte Forman*, 230 USPQ 546 (Bd. Pat. App. & Int., 1986); also *In re Wands*, 858 F. 2d 731, 8 USPQ 2d 1400 (Fed. Cir. 1988)].

The breadth of the claims: Claims 1 and its dependent claims recite the limitation of “solvates” or the “solvates of its salts” of the compound represented by formula (I). The term “solvates” covers various forms of the same compound at different proportions of solvents. Thus, the scope of “solvates” recited in claim 1 and its dependent claims are unduly broad.

The amount of direction or guidance presented: Although the specification lists possible salts, it does not describe “solvate” or provides guidance on what proportion of solvents to use for obtaining a “solvate”. Thus, the specification fails to provide sufficient enablement for making a “solvate” of the claimed compounds.

The state of the prior art: Although it is not unusual to expect a “solvate” of a compound, the process for selecting a solvent to make a solvate is not standard for all drugs since not all solvents can form solvates with all compounds. For the claimed compound, there is no reference teaching any possible solvate. Furthermore, the teaching of Vippagunta flatly states on page 18, section 3.4 the following:

“Predicting the formation of solvates or hydrates of a compound...is complex and difficult.”

Thus, the state of the prior art does not support the broad scope of the above claims.

The relative skill of those in the art: Even with the advanced training, the skilled clinician would have to engage in extensive research to select a “solvate” for each compound

from the large Markush group of formula (I). Not only one has to determine an IC_{50} value, but also *in-vivo* activity to establish an LD_{50} , therapeutic index and active metabolites for each “solvate”. Given a large Markush group of formula (I), such a task would require a tremendous amount of effort, time and resource.

The predictability or unpredictability of the art & The quantity of experimentation necessary: The process of making a “solvate” is quite unpredictable because it is not possible to predict whether solid solutions will form and at what stoichiometry proportion (i.e, one, two, or half a molecule of solvent added per molecule of host) – see the following excerpt of

Vippagunta et. al. :

Each solid compound responds uniquely to the possible formation of solvates...and hence generalizations cannot be made for a series of related compounds. Certain molecular shapes and features favor the formation of crystals without solvent;...There may be too many possibilities so that no computer programs are currently available for predicting the crystal structures of ...solvates.

(Vippagunta et. al., Crystalline solids, *Advanced Drug Delivery Review*, 48(2001) 3-26)

Thus, with such a limited teaching from the specification and the art, the skilled chemist would have to engage in undue experimentation to make the hundreds of thousands of compounds and “solvates” of compounds represented by formula (I) recited in the above claims.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Use Claim: Claims 6-8 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claim Objections

4. Claim 12 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to preceding claims in the alternative language. See MPEP § 608.01(n). In this case, claim 12 refers to three different sets of claims which makes it an improper multiple dependent claim. Accordingly, the claim 12 has not been further treated on the merits.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAMTHOM N. TRUONG whose telephone number is (571)272-0676. The examiner can normally be reached on Monday thru Friday (9:00-5:30).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. James O. Wilson can be reached on 571-272-0661. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tamthom N. Truong/
Examiner, Art Unit 1624

6-9-10

There were 2 E-mails sent. One WAS recalled but the other you recieved.

From : Wilson, James
Sent: Monday, June 14, 2010 8:37 PM
To: Ngo, Tamthom
Cc: Wilson, James
Subject: Non-Final 10579253 Improper Multiply Dependent Claims/ Solvate rejection under 112 2nd.

1. Improper Multiply dependent claims

Claims 5-12 should not be acted upon because a multiply dependent claim cannot depend from another multiply dependent claim. Claims taht depend from these improper claims should not be acted upon.

Claims 5-7, 9, 10 are NOT improper multiple dependent claims b/c they recite the phrase "any of Claims 1 to 3". Claim 8 depends on claim 7, and claim 11 depends on claim 10, thus, those two claims are not improper multiple dependent claims.

Any rejections which contain claims 5-12 are improper rejections since these claims should be withdrawn as improper.

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Action should be drawn to rejections and objections that involve claims 1-4 ONLY.

The rejection of the term "solvate" under 112 2nd. I disagree with this rejection. We know what a solvate is and the issue is best addressed under 112 1st "lack of enablement for teaching how to make a solvate". This 112 1st rejection should be over claims 1-4 ONLY.

The term "solvents" is not defined anywhere in the specification, and by what I've been told, it would be indefinite because it is not clear what solvent is appropriate (if any) for making the claimed solvate. A rejection under 112/1st is made as per your request.